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Amdt. dat d September 17, 2003
Reply to Office action of June 17, 2003

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.   (Cancelled).

2.   (Previously amended) A computer-implemented method for randomly walking through a hyper-text-linked document set comprising a plurality of documents, wherein at least a subset of the documents contain a plurality of links to other documents, each document being associated with a host, the method comprising:

    a)   selecting a host:

    b)   selecting at random a document associated with the host;

    c)   retrieving the selected document;

    d)   responsive to occurrence of a random event:

        d.1)   selecting at random a host from among the previously selected hosts;

        d.2)   selecting at random a document associated with the host; and

        d.3)   retrieving the selected document;

    e)   responsive to non-occurrence of the random event:

        e.1)   selecting at random a link in the retrieved document; and

        e.2)   retrieving a document referenced by the selected link; and

    f)   repeating d) and e) until a predetermined condition is met.

3.   (Previously amended) The method of claim 2, wherein the random event comprises:

a generated random number falling within a predetermined range.

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4.   (Previously amended) The method of claim 2, wherein the document set is the World Wide Web, and wherein each document is a web page.

5.   (Original) The method of claim 4, wherein each host corresponds to a domain.

6.   (Previously amended) The method of claim 2, further comprising, concurrently with a) through f), performing a second two-level random walk through the hypertext-linked document set.

7.   (Previously amended) A computer-implemented method for randomly walking through a hypertext-linked document set comprising a plurality of documents, wherein at least a subset of the documents contain a plurality of links to other documents, each document being associated with a host, the method comprising:

    a)   initializing a host set;

    b)   initializing a document set for each host in the host set;

    c)   selecting at random a host from the host set;

    d)   selecting at random a document from the document set of the selected host;

    e)   responsive to the selected document containing at least one link:

        e.1)   selecting at random a link from the selected document;

        e.2)   selecting a document corresponding to the selected link;

        e.3)   selecting a host corresponding to the selected document;

        e.4)   adding the selected host to the host set;

        e.5)   adding the selected document to the document set of the selected host; and

        e.6)   repeating e.1) through e.5) until a first predetermined condition is met; and

    f)   repeating c) through e) until a second predetermined condition is met.

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8.   (Previously amended) The method of claim 7, wherein:

  e.4)   is performed responsive to the selected host not being in the host set; and

  e.5)   is performed responsive to the selected document not being in the document set of the selected host.

9.   (Previously amended) A computer-implemented method for randomly walking through a hypertext-linked document set comprising a plurality of documents, wherein at least a subset of the documents contain a plurality of links to other documents, each document being associated with a host, the method comprising:

  a)   initializing a host set;

  b)   initializing a document set for each host in the host set;

  c)   selecting at random a host from the host set;

  d)   selecting at random a document from the document set of the selected host;

  e)   responsive to non-occurrence of a random event and further responsive to the selected document containing at least one link:

    e.1)   selecting at random a link from the selected document;

    e.2)   selecting a document corresponding to the selected link;

    e.3)   selecting a host corresponding to the selected document;

    e.4)   adding the selected host to the host set;

    e.5)   adding the selected document to the document set of the selected host; and

    e.6)   repeating e.1) through e.5) until a first predetermined condition is met; and

  f)   repeating c) through e) until a second predetermined condition is met.

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10.   (Previously amended) The method of claim 9, wherein the random event comprises:

    a generated random number falling within a predetermined range.

11.   (Original) The method of claim 7, wherein the hypertext-linked document set is the World Wide Web, and wherein each document is a web page.

12.   (Original) The method of claim 11, wherein each host corresponds to a domain.

13.   (Original) A computer-implemented method for measuring relative quality of a search engine index, comprising:
    a)   performing a two-level random walk among documents within a document set;
    b)   for each document encountered in the random walk, determining whether the document is indexed by the search engine index; and
    c)   aggregating the results of b).

14.   (Original) The method of claim 13, wherein at least a subset of the documents contain a plurality of links to other documents, each document being associated with a host, and wherein a) comprises:
    a.1)   selecting a host;
    a.2)   selecting at random a document associated with the host;
    a.3)   retrieving the selected document;
    a.4)   selecting at random a link in the retrieved document;
    a.5)   retrieving a document referenced by the selected link; and
    a.6)   repeating a.4) and a.5) until a predetermined condition is met.

15.   (Previously amended) A computer-implemented method for measuring relative quality of a search engine index, comprising:

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a)   performing a two-level random walk among documents within a
        document set, by:
        a.1)   selecting a host;
        a.2)   selecting at random a document associated with the host;
        a.3)   retrieving the selected document;
                a.3.1) responsive to occurrence of a random event;
                        a.3.1.1)   selecting at random a host from among
                                        the previously selected hosts;
                        a.3.1.2)   selecting at random a document
                                        associated with the host; and
                        a.3.1.3)   retrieving the selected document;
                a.3.2) responsive to non-occurrence of the random event:
        a.4)   selecting at random a link in the retrieved document; and
        a.5)   retrieving a document referenced by the selected link; and
        a.6)   repeating a.3.1) through a.5) until a predetermined condition
                is met;
b)   for each document encountered in the random walk, determining
        whether the document is indexed by the search engine index; and
c)   aggregating the results of b).

16.   (Currently amended) The method of claim 13, wherein at least a subset of
the documents contain a plurality of links to other documents, each document
being associated with a host, and wherein a) comprises:
        a.1)   initializing a host set;
        a.2)   initializing a document set for each host in the host set;
        a.3)   selecting at random a host from the host set;
        a.4)   selecting at random a document from the document set of the
                selected host;
        a.5)   adding the ~~selected~~ a host that is referenced by the selected link to
the host set;

    a.6)   adding the ~~selected~~ document <u>referenced by the selected link</u> to the document set of the selected host;

    a.7)   responsive to the selected document containing at least one link:

        a.7.1)   selecting at random a link from the selected document;

    a.7.2) selecting a document corresponding to the selected link;

    a.7.3) selecting a host corresponding to the selected document;

    a.7.4) repeating a.5) through a.8) until a predetermined condition is met; and

    a.8)   responsive to the selected document not containing at least one link, repeating a.3) through a.8) until a predetermined condition is met.

17.   (Original) The method of claim 16, wherein:

    a.5)   is performed responsive to the selected host not being in the host set; and

    a.6)   is performed responsive to the selected document not being in the document set of the selected host.

18.   (Original) The method of claim 13, wherein each document contains a plurality of words, and wherein b) comprises, for each document encountered in the random walk:

    b.1)   selecting at least one word from the document;

    b.2)   performing a query on the search engine index based on the selected at least one word, to obtain search results; and

    b.3)   determining whether the document is included in the obtained search results.

19.   (Original) The method of claim 18, wherein b.1) comprises selecting at least one word based on rarity.

20.   (Previously amended) A computer-implemented method for measuring relative quality of a target document in a document set, comprising:

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    a)   performing a two-level random walk among documents within a
          document set; and

    b)   determining a quality metric responsive to the number of times the
          target document is encountered in the random walk.

21.   (Previously amended) A computer-implemented method for measuring
relative quality of a target document in a document set comprising a plurality of
documents, wherein at least a subset of the documents contain a plurality of links
to other documents, the method comprising:

    a)   performing a two-level random walk among documents within a
          document set; and

    b)   determining a quality metric responsive to the number of documents
          encountered during the two-level random walk that link to the target
          document.

22.   (Previously amended) The method of claim 21, wherein b) comprises
determining a quality metric responsive to the number of documents that link to
the target document, and responsive to the quality metric of the linking
documents.

23.   (Previously amended) The method of claim 21, wherein b) comprises
determining a value for:

$$R(p) = d/T + (1-d)\sum_{i=1}^{k} R(p_i)/C(p_i)$$

where:

R(p) is the PageRank of target document p;

R(p$_i$) is the PageRank of document p$_i$;

T is the total number of documents in the document set;

d is a damping factor such that 0<d< 1;

documents p$_i$, ... , P$_k$ each contain at least on link to target document p;
    and

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C(p$_i$) is the number of links out of document p$_i$.

24.   (Previously amended) A computer-implemented method for measuring relative quality of a target document in a document set comprising a plurality of documents, wherein at least a subset of the documents contain a plurality of links to other documents, wherein each document is associated with a host, the method comprising:

a)   performing a two-level random walk among documents within a document set by:

a.1)   selecting a host;

a.2)   selecting at random a document associated with the host;

a.3)   retrieving the selected document;

a.4)   responsive to occurrence of a random event:

a.4.1) selecting at random a host from among the previously selected hosts;

a.4.2) selecting at random a document associated with the host; and

a.4.3) retrieving the selected document;

a.5)   responsive to non-occurrence of the random event:

a.5.1) selecting at random a link in the retrieved document; and

a.5.2) retrieving a document referenced by the selected link; and

a.6)   repeating a.4) to a.5) until a predetermined condition is met; and

b)   determining a quality metric responsive to the number of documents encountered during the two-level random walk that link to the target document.

25.   (Previously amended) A computer-implemented method for measuring relative quality of a target document in a document set comprising a plurality of

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documents, wherein at least a subset of the documents contain a plurality of links to other documents, wherein each document is associated with a host, the method comprising:

     a)   performing a two-level random walk among documents within a document set, by:

     a.1)   initializing a host set;

     a.2)   initializing a document set for each host in the host set;

     a.3)   selecting at random a host from the host set;

     a.4)   responsive to occurrence of a random event

        a.4.1) selecting at random a host from among the previously selected hosts;

     a.5)   responsive to non-occurrence of the random event:

        a.5.1) selecting at random a document from the document set of the selected host; and

        a.5.2) responsive to the selected document containing at least one link:

           a.5.2.1)   selecting at random a link from the selected document;

           a.5.2.2)   selecting a document corresponding to the selected link;

           a.5.2.3)   selecting a host corresponding to the selected document; and

           a.5.2.4)   adding the selected host to the host set;

           a.5.2.5)   adding the selected document to the document set of the selected host;

           a.5.2.6)   repeating a.5.2.1) through a.5.2.5) until a first predetermined condition is met; and

     a.6)   repeating a.3) through a.5) until a second predetermined condition is met; and

b)   determining a quality metric responsive to the number of documents encountered during the two-level random walk that link to the target document.

26.   (Previously amended) The method of claim 21, further comprising:

c)   determining a quality metric for at least one additional target document; and

d)   ranking the quality metric of the first target document with respect to the quality metrics of the additional target documents.

27.   (Previously amended) A computer-implemented method for randomly walking through a hypertext-linked document set comprising a plurality of documents, wherein at least a subset of the documents contain a plurality of links to other documents, each document being associated with a host, the method comprising:

a)   selecting a host;

b)   selecting at random a document associated with the host;

c)   retrieving the selected document;

d)   responsive to occurrence of a random event:

d.1)   selecting at random a host from among the previously selected hosts; and

d.2)   repeating b) through e) until a predetermined condition is met; and

e)   responsive to non-occurrence of the random event:

e.1)   selecting at random a link in the retrieved document;

e.2)   retrieving a document referenced by the selected link; and

e.3)   repeating d) and e) until a predetermined condition is met.

28.   (Previously amended) A computer-implemented method for measuring relativ quality of a target document in a document set comprising a plurality of

documents, wherein at least a subset of the documents contain a plurality of links to other documents, the method comprising:

    a)   performing a two-level random walk among documents within a document set, by:

    a.1)   initializing a host set;

    a.2)   initializing a document set for each host in the host set;

    a.3)   selecting at random a host from the host set;

    a.4)   responsive to occurrence of a random event:

    a.4.1) selecting at random a host from among the previously selected hosts;

    a.5)   responsive to non-occurrence of the random event:

    a.5.1) selecting at random a document from the document set of the selected host; and

    a.5.2) responsive to the selected document containing at least one link:

        a.5.2.1)   selecting at random a link from the selected document;

        a.5.2.2)   selecting a document corresponding to the selected link;

        a.5.2.3)   selecting a host corresponding to the selected document; and

        a.5.2.4)   adding the selected host to the host set;

        a.5.2.5)   adding the selected document to the document set of the selected host;

        a.5.2.6)   repeating a.5.2.1) through a.5.2.5) until a first predetermined condition is met; and

    a.6)   repeating a.3) through a.5) until a second predetermined condition is met; and

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      b)   determining a quality metric responsive to the number of documents encountered during the two-level random walk that link to the target document;

      c)   determining a quality metric for at least one additional target document; and

      d)   ranking the quality metric of the first document with respect to the quality metrics of the additional target documents.

29.   (Cancelled).

30.   (Previously amended) A computer program product comprising a computer-usable medium having computer-readable code embodied therein for randomly walking through a hypertext-linked document set comprising a plurality of documents, wherein at least a sub-set of the documents contain a plurality of links to other documents, each document being associated with a host, the computer program product comprising:

      a)   computer-readable program code devices configured to cause a computer to select a host;

      b)   computer-readable program code devices configured to cause
             a computer to select at random a document associated with the host;

      c)   computer-readable program code devices configured to cause a computer to retrieve the selected document;

      d)   computer-readable program code devices configured to cause a computer to, responsive to occurrence of a random event:

          d.1)   select at random a host from among the previously selected hosts; and

          d.2)   select at random a document associated with the host; and

          d.3)   retrieve the selected document;

      e)   computer-readable program code devices configured to cause a computer to, responsive to non-occurrence of the random event:

> e.1)   select at random a link in the retrieved document; and
>
> e.2)   retrieve a document referenced by the selected link; and
>
> f)   computer-readable program code devices configured to cause a computer to repeat the operations of d) and e) until a predetermined condition is met.

31.   (Previously amended) The computer program product of claim 30, wherein the random event comprises:

a generated random number falling within a predetermined range.

32.   (Previously amended) The computer program product of claim 30, wherein the document set is the World Wide Web, and wherein each document is a web page.

33.   (Canceled)

34.   (Canceled)

35.   (Currently amended) A computer program product comprising a computer-usable medium having computer-readable code embodied therein for randomly walking through a hypertext-linked document set comprising a plurality of documents, wherein at least a subset of the documents contain a plurality of links to other documents, each document being associated with a host, the computer program product comprising:

a)   computer-readable program code devices configured to cause a computer to initialize a host set;

b)   computer-readable program code devices configured to cause a computer to initialize a document set for each host in the host set;

c)   computer-readable program code devices configured to cause a computer to select at random a host from the host set;

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d)   computer-readable program code devices configured to cause a
        computer to select at random a document from the document set of
        the selected host;

e)   computer-readable program code devices configured to cause a
        computer to, responsive to the selected document containing at
        least one link:

e.1)   select at random a link from the selected document;

e.2)   select a document corresponding to the selected link;

e.3)   select a host corresponding to the selected document; and

e.4)   add the selected host to the host set;

e.5)   add the selected document to the document set of the
        selected host; and

e.6)   repeat the operations of e.1) through e.5) until a first
        predetermined condition is met; and

fh)   computer-readable program code devices configured to cause a
computer to repeat the operations of c) through e) until a second predetermined
condition is met.

36.   (Original) The computer program product of claim 35, wherein:

the computer-readable program code devices configured to cause a
        computer to add the selected host to the host set operate
        responsive to the selected host not being in the host set; and

the computer-readable program code devices configured to cause a
        computer to add the selected document to the document set of the
        selected host operate responsive to the selected document not
        being in the document set of the selected host.

37.   (Previously amended) A computer program product comprising a
computer-usable medium having computer-readable code embodied therein for
randomly walking through a hypert xt-linked docum nt set comprising a plurality
of documents, wherein at least a sub-set of the documents contain a plurality of

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links to other documents, each document being associated with a host, the computer program product comprising:

    a)   computer-readable program code devices configured to cause a computer to initialize a host set;

    b)   computer-readable program code devices configured to cause a computer to initialize a document set for each host in the host set;

    c)   computer-readable program code devices configured to cause a computer to select at random a host from the host set;

    d)   computer-readable program code devices configured to cause a computer to select at random a document from the document set of the selected host;

    e)   computer-readable program code devices configured to cause a computer to, responsive to non-occurrence of a random event, and further responsive to the selected document containing at least one link:

    e.1)   select at random a link from the selected document;

    e.2)   select a document corresponding to the selected link;

    e.3)   select a host corresponding to the selected document; and

    e.4)   add the selected host to the host set;

    e.5)   add the selected document to the document set of the selected host; and

    e.6)   repeat the operations of e.1 through e.5) until a first predetermined condition is met; and

    f)   computer-readable program code devices configured to cause a computer to repeat the operations of c) through e) until a second predetermined condition is met.

38.   (Previously amended) The computer program product of claim 37, wherein the random event comprises:

    a generated random number falling within a predetermined range.

39.   (Original) The computer program product of claim 35, wherein the hypertext-linked document set is the World Wide Web, and wherein each document is a web page.

40.   (Original) The computer program product of claim 39, wherein each host corresponds to a domain.

41.   (Original) A computer program product comprising a computer-usable medium having computer-readable code embodied therein for measuring relative quality of a search engine index, the computer program product comprising:

    a)   computer-readable program code devices configured to cause a computer to perform a two-level random walk among documents within a document set;

    b)   computer-readable program code devices configured to cause a computer to, for each document encountered in the random walk, determine whether the document is indexed by the search engine index; and

    c)   computer-readable program code devices configured to cause a computer to aggregate the results of the operations of b).

42.   (Original) The computer program product of claim 41, wherein at least a subset of the documents contain a plurality of links to other documents, each document being associated with a host, and wherein the computer-readable program code devices configured to cause a computer to perform a two-level random walk comprise:

    a.1)   computer-readable program code devices configured to cause a computer to select a host;

    a.2)   computer-readable program code devices configured to cause a computer to select at random a document associated with the host;

    a.3)   computer-readable program code devices configured to caus a computer to retrieve the selected document;

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a.4) computer-readable program code devices configured to cause a computer to select at random a link in the retrieved document;

a.5) computer-readable program code devices configured to cause a computer to retrieve a document referenced by the selected link; and

a.6) computer-readable program code devices configured to cause a computer to repeat the operations of a.4) and a.5) until a predetermined condition is met.

43.   (Canceled)

44.   (Currently amended) The computer program product of claim 41, wherein at least a subset of the documents contain a plurality of links to other documents, each document being associated with a host, and wherein the computer-readable program code devices configured to cause a computer to perform a two-level random walk comprise:

a.1) computer-readable program code devices configured to cause a computer to initialize a host set;

a.2) computer-readable program code devices configured to cause a computer to initialize a document set for each host in the host set;

a.3) computer-readable program code devices configured to cause a computer to select at random a host from the host set;

a.4) computer-readable program code devices configured to cause a computer to select at random a ~~document~~-link from ~~the~~-a document in the document set of the selected host;

a.5) computer-readable program code devices configured to cause a computer to add the ~~selected~~-host referenced by the link to the host set;

a.6) computer-readable program code devices configured to cause a computer to add the ~~selected~~-docum nt referenced by the link to the document set of the selected host;

a.7)   computer-readable program code devices configured to cause a computer to, responsive to the selected document containing at least one link:

a.7.1) select at random a link from the selected document;

a.7.2) select a document corresponding to the selected link;

a.7.3) select a host corresponding to the selected document;

a.7.4) repeat the operations of a.5) through a.8) until a predetermined condition is met; and

a.8)   computer-readable program code devices configured to cause a computer to, responsive to the selected document not containing at least one link, repeat the operations of a.3) through a.8) until a predetermined condition is met.

45.   (Original) The computer program product of claim 44, wherein:

the computer-readable program code devices configured to cause a computer to add the selected host to the host set are configured to cause a computer to add the selected host responsive to the selected host not being in the host set; and

the computer-readable program code devices configured to cause a computer to add the selected document to the document set of the selected host are configured to cause a computer to add the selected document responsive to the selected document not being in the document set of the selected host.

46.   (Previously amended) The computer program product of claim 41, wherein each document contains a plurality of words, and wherein the computer-readable program code devices configured to cause a computer to determine whether the document is indexed by the search engine index comprise computer-readable program code devices configured to, for each document encountered in the random walk:

b.1)   select at least one word from the document;

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b.2)   perform a query on the search engine index based on the selected
at least one word, to obtain search results; and

b.3)   determine whether the document is included in the obtained search
results.

47.   (Original) The computer program product of claim 46, wherein the
computer-readable program code devices configured to select at least one word
from the document comprise computer-readable program code devices
configured to select at least one word based on rarity.

48.   (Previously amended) A computer program product comprising a
computer-usable medium having computer-readable code embodied therein for
measuring relative quality of a target document in a document set, the computer
program product comprising:

computer-readable program code devices configured to cause a computer
to perform a two-level random walk among documents within a
document set; and

computer-readable program code devices configured to cause a computer
to determine a quality metric responsive to the number of times the
target document is encountered in the random walk.

49.   (Previously amended) A computer program product comprising a
computer-usable medium having computer-readable code embodied therein for
measuring relative quality of a target document in a document set comprising a
plurality of documents, wherein at least a subset of the documents contain a
plurality of links to other documents, the computer program product comprising:

computer-readable program code devices configured to cause a computer
to perform a two-level random walk among documents within a
document set; and

computer-r adable program cod devices configured to cause a computer
to determine a quality metric responsive to the number of

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documents encountered during the two-level random walk that link to the target document.

50.   (Previously amended) The computer program product of claim 49, wherein the computer-readable program code devices configured to cause a computer to determine a quality metric comprise computer-readable program code devices configured to cause a computer to determine a quality metric responsive to the number of documents that link to the target document, and responsive to the quality metric of the linking documents.

51.   (Previously amended) The computer program product of claim 49, wherein the computer-readable program code devices configured to cause a computer to determine a quality metric comprise computer-readable program code devices configured to cause a computer to determine a value for:

$$R(p) = d / T + (1-d)\sum_{i-1}^{k} R(p_i) / C(p_i)$$

where:

R(p) is the PageRank of target document p;

R(p_i) is the PageRank of document p_i;

T is the total number of documents in the document set;

d is a damping factor such that 0 < d < 1;

documents p_1,..., p_k each contain at least one link to target document p; and

C(p_i) is the number of links out of document p_i.

52.   (Previously amended) A computer program product comprising a computer-usable medium having computer-readable code embodied therein for measuring relative quality of a target document in a document set comprising a plurality of documents, wherein at least a subset of the documents contain a plurality of links to other documents, and wherein each document is associated with a host, the computer program product comprising:

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computer-readable program code devices configured to cause a computer to perform a two-level random walk among documents within a document set, by:

    a.1)   selecting a host;

    a.2)   selecting at random a document associated with the host;

    a.3)   retrieving the selected document;

    a.4)   responsive to occurrence of a random event:

        a.4.1) selecting at random a host from among the previously selected hosts; and

        a.4.2) selecting at random a document associated with the host; and

        a.4.3) retrieving the selected document;

    a.5)   responsive to non-occurrence of the random event:

    a.6)   selecting at random a link in the retrieved document; and

    a.7)   retrieving a document referenced by the selected link; and

    a.8)   repeating the operations of a.4) to a.7) until a predetermined condition is met; and

computer-readable program code devices configured to cause a computer to determine a quality metric responsive to the number of documents encountered during the two-level random walk that link to the target document.

53.   (Previously amended)   A computer program product comprising a computer-usable medium having computer-readable code embodied therein for measuring relative quality of a target document in a document set comprising a plurality of documents, wherein at least a subset of the documents contain a plurality of links to other documents, wherein each document is associated with a host, the computer program product comprising:

computer-readable program code devices configured to cause a computer to perform a two-level random walk among documents within a document set, by:

    a.1)   initializing a host set;

    a.2)   initializing a document set for each host in the host set;

    a.3)   selecting at random a host from the host set;

  a.4) responsive to occurrence of a random event:

    a.4.1) selecting at random a host from among the previously selected hosts;

  a.5) responsive to non-occurrence of the random event:

    a.5.1) selecting at random a document from the document set of the selected host;

    a.5.2) adding the selected host to the host set;

    a.5.3) adding the selected document to the document set of the selected host;

    a.5.4) responsive to the selected document containing at least one link:

      a.5.4.1) selecting at random a link from the selected document;

      a.5.4.2) selecting a document corresponding to the selected link;

      a.5.4.3) selecting a host corresponding to the selected document; and

      a.5.4.4) repeating the operations of a.5.2) through a.5.4.3) until a first predetermined condition is met; and

  a.6) repeating the operations of a.3) through a.5.4.4) until a second predetermined condition is met; and

computer-readable program code devices configured to cause a computer to determine a quality metric responsive to the number of documents encountered during the two-level random walk that link to the target document.

54. (Previously amended) The computer program product of claim 49, further comprising:

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    c)   computer-readable program code devices configured to cause a computer to determine a quality metric for at least one additional target document; and

    d)   computer-readable program code devices configured to cause a computer to rank the quality metric of the first target document with respect to the quality metrics of the additional target documents.

55.   (Previously amended) A computer program product comprising a computer-usable medium having computer-readable code embodied therein for randomly walking through a hypertext-linked document set comprising a plurality of documents, wherein at least a subset of the documents contain a plurality of links to other documents, each document being associated with a host, the computer program product comprising:

    a)   computer-readable program code devices configured to cause a computer to select a host;

    b)   computer-readable program code devices configured to cause a computer to select at random a document associated with the host;

    c)   computer-readable program code devices configured to cause a computer to retrieve the selected document;

    d)   computer-readable program code devices configured to cause a computer to, responsive to occurrence of a random event:

        d.1)   select at random a host from among the previously selected hosts; and

        d.2)   repeat the operations of b) through e) until a predetermined condition is met

    e)   computer-readable program code devices configured to cause a computer to, responsive to non-occurrence of the random event:

        e.1)   select at random a link in the retrieved document;

        e.2)   retrieve a document referenced by the selected link; and

        e.3)   repeat the operations of d) and e) until a predetermined condition is met.

56.   (Currently amended) A computer program product comprising a computer-usable medium having computer-readable code embodied therein for measuring relative quality of a target document in a document set comprising a plurality of documents, wherein at least a subset of the documents contain a plurality of links to other documents, the computer program product comprising:

a)   computer-readable program code devices configured to cause a computer to perform a two-level random walk among documents within a document set by:

a.1)   initializing a host set;

a.2)   initializing a document set for each host in the host set;

a.3)   selecting at random a host from the host set;

a.4)   responsive to occurrence of a random event:

a.4.1) selecting at random a host from among the previously selected hosts;

a.5)   responsive to non-occurrence of the random event:

a.5.1) selecting at random a link from a document ~~from~~ in the document set of the selected host;

a.5.2) adding the ~~selected~~ host referenced by the link to the host set;

a.5.3) adding the ~~selected~~ document referenced by the link to the document set of the selected host;

a.5.4) responsive to the selected document containing at least one link:

a.5.4.1)   selecting at random a link from the selected document;

a.5.4.2)   selecting a document corresponding to the selected link;

a.5.4.3)   selecting a host corresponding to the select d document;

> > a.5.4.4)   repeating the operations of a.5.2) through a.5.4.3) until a first predetermined condition is met; and
>
> a.9)   responsive to the selected document not containing at least one link, repeat the operations of a.3) through a.5.4.4) until a second predetermined condition is met;

b)   computer-readable program code devices configured to cause a computer to determine a quality metric responsive to the number of documents encountered during the two-level random walk that link to the target document;

c)   computer-readable program code devices configured to cause a computer to determine a quality metric for at least one additional target document; and

d)   computer-readable program code devices configured to cause a computer to rank the quality metric of the first document with respect to the quality metrics of the additional target documents.

57.   (Previously amended) A system for randomly walking through a hypertext-linked document set comprising a plurality of documents, wherein at least a subset of the documents contain a plurality of links to other documents, each document being associated with a host, the system comprising:

a)   a host selector;

b)   a random document selector, coupled to the host selector, for selecting at random a document associated with the host;

c)   a document retriever, coupled to the random document selector, for retrieving the selected document; and

d)   a link selector, coupled to the document retriever;

wherein, responsive to occurrence of a random event:

> the host selector selects at random a host from among the previously selected hosts;

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the random document selector selects at random a document associated with the host; and

the document retriever retrieves the selected document; and

wherein, responsive to non-occurrence of the random event:

the link selector selects at random a link in the retrieved document; and

the document retriever retrieves a document referenced by the selected link; and

and wherein the link selector, the random document selector, and the document retriever repeat their respective operations until a predetermined condition is met.

58.   (Original) A system for measuring relative quality of a search engine index, comprising:

a random walker, for performing a two-level random walk among documents within a document set;

a determination module, coupled to the random walker, for, for each document encountered in the random walk, determining whether the document is indexed by the search engine index; and

a results aggregation module, coupled to the determination module, for aggregating the results of the determination module.

59.   (Previously amended) A system for measuring relative quality of a target document in a document set, comprising:

a random walker, for performing a two-level random walk among documents within a document set; and

a determination module, coupled to the random walker, for determining a quality metric responsive to the number of times the target document is encountered in the random walk.

60.   (New) A system, comprising:

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a processor, and

memory containing software executable by the processor;

wherein, by executing the software, the processor initializes a document
set, selects an arbitrary hyperlink included in a selected document
in the document set, and adds a document referenced by the
hyperlink to the document set.

61.   (New) The system of claim 60 wherein the processor further initializes a
host set and adds a host referenced by the arbitrary hyperlink to the host
set.

62.   (New) The system of claim 60 wherein the processor further determines
whether the document referenced by the arbitrary hyperlink is included in a
search engine index.